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**Part 3 – Remarks**

This Response responds to the Office Action mailed May 24, 2007. In that Office Action, all of the pending claims were rejected as obvious in view of combinations of two to five references. Specifically, (a) claims 1-7, 17, 19, 25, 66-71, 73, 81 and 87 were rejected under 35 USC 103 as obvious from US patent 6,175,610 to Peter in view of US patent 5,599,159 to Daum, although comments concerning the rejection of claims 1, 3, 5, 7, 17, 25, 66, 70, 81 and 97 seem also to assert US patent 6,710,770 to Tomasi, the rejection being unclear in that regard (see page 4); (b) claims 8-10, 74 and 75 were rejected under 35 USC 103 as obvious from Peter and Daum in view of US patent 5,524,180 to Wang; (c) claim 11 was rejected under 35 USC 103 as obvious from Peter, Daum and Wang in view of US patent 6,801,637 to Voronka; (d) claims 12-16, 20-24, 72 and 76-80 were rejected under 35 USC 103 as obvious from Peter, Daum, Wang and Veronica in view of US patent 6,710,770 to Tomasi; (e) claims 29, 56, 84, 85, 94-96, 98 and 108 were rejected under 35 USC 103 as obvious from Peter and Daum in view of US patent 6,847,336 to Lemelson; (f) claims 34-45, 47, 52, 57-61, 86-93, 99 and 103-107 were rejected under 35 USC 103 as obvious from Peter, Daum and Lemelson in view of US patent 6,603,464 to Rabin; and (g) claims 111-140 or noted as "considered and examined, yet, having been rejected for the same reason indicated in the rejections to (all of the pending preceding pending claims) as listed above. . ."

Reconsideration of these rejections is respectfully requested.

Claims 1-17, 19-25, 29, 34-45, 47, 52, 56-61, 66-81, 84-99, 103-108 and 112-140 are pending.

**Claim Amendments**

The claim amendments presented correct informalities and errors of form.

**The Rejections Do Not Comply with the Law or PTO Policy, and  
Thereby Deprive the Applicant of a Fair Opportunity to Respond.**

The first reason that the office action is deficient is that the rejection of claim 56 amounts to a final rejection of a claim which had not previously been examined or considered. The previous office action of August 28, 2006 did not reject claims 54-56. This point was called to the Examiner's attention in the Amendment and Response filed

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on February 26, 2007, at page 33, third paragraph. Even though claims 54 and 55 were canceled in the February 26 Amendment and Response, claim 56 remains pending and was not previously considered or examined prior to the May 24 office action. The May 24 office action was therefore the first consideration or examination of claim 56, and that rejection was asserted as "Final."

A final rejection of claims not previously considered or examined is specifically prohibited under the Rules. 37 CFR 1.113 limits the application of final office actions to "second or any subsequent examination or consideration." Since the May 24 office action presents only the first examination or consideration of claim 56, the May 24 office action should not have been made "Final." MPEP 706.07(b) also prohibits the practice of final rejections of claims not previously examined.

On June 18, 2007, the undersigned had a telephone conversation with Anthony Knight, the supervisory patent examiner, during which the undersigned raised the issue of the first examination final rejection of claim 56. Mr. Knight stated that the proper procedure was to file a response pointing out the error of the first final rejection and thereafter the finality of the May 24 office action would be withdrawn. This response complies with Mr. Knight's direction, and accordingly, the May 24 office action should be considered as a non-final office action.

The second reason that the May 24 office action is deficient is that it fails to identify any reasons why a person of ordinary skill in the art would have combined the prior art references in the manner claimed in the obviousness rejections. Since all of the pending rejections are for alleged obviousness (35 USC 103(a)) based on a combination of two to five references, and because no reasons are provided in any of the rejections for combining the references, all of the rejections are deficient. Moreover, two of the seven rejections ((a) and (g) identified above) do not clearly state which references are applied in those rejections.

In each of the rejections, the references are described as "teaching" certain alleged subject matter. However, in none of the rejections is any reason given why a person of ordinary skill in the art would have combined the references in the manner claimed. The failure to provide such reasons is in conflict with the law and PTO policy.

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The PTO policy represented in MPEP 706.02(j) is as follows, in relevant part:

35 U.S.C. 103 authorizes a rejection where, to meet the claim, it is necessary to modify a single reference or to combine it with one or more other references. After indicating that the rejection is under 35 U.S.C. 103, the Examiner should set forth in the office action:

...  
(D) an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification.  
...

It is important for an Examiner to properly communicate the basis for rejection so that the issues can be identified early and the applicant can be given a fair opportunity to reply.

Moreover, the recent to Supreme Court case KSR Int'l. Co. v. Teleflex, Inc., 127 S.Ct. 1727 (2007), reaffirmed the necessity to make explicit the apparent reason to combine the prior art elements in an obviousness evaluation. The PTO has recognized this aspect of the KSR case. In a Memorandum dated May 3, 2007, copy attached, from Margaret A. Focarino, Deputy Commissioner for Patent Operations, addressed to all of Technology Center Directors, she states:

Therefore, in formulating a rejection under 35 USC § 103(a) based upon a combination of prior art elements, it is necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed.

An examination of the seven obviousness rejections indicates that no reasons have been advanced in any of those rejections as to why a person having ordinary skill in the art would have combined the references in the manner claimed. Consequently, the applicant has been deprived of an fair opportunity to respond to these obviousness rejections.

The rejections in the May 16 office action are not the first occurrence of a failure to state reasons for combining the references. The obviousness rejections of the first office action of August 28, 2006, were also deficient in the same regard. In responding to the August 28, 2006 office action, the applicant pointed out this deficiency and requested clarification and a complete office action. See pages 33-34 of the Amendment and

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Response to First Office Action, filed February 26, 2007. The May 24 office action did not rectify that deficiency, but in fact exacerbated the deficiency because all of the rejections are now based on obviousness. Previous rejections based on anticipation have been withdrawn.

Any future obviousness rejections should comply with the law and PTO policy by stating reasons for the combination of elements, and any such future obviousness rejections should not be made final, because the applicant has not had a previous fair opportunity to respond to a complete obviousness rejection.

Moreover, the applicant requests clarification of the statements or rejections summarized at (g) on page 32 hereof (paragraph 8, page 11 of the May 24 office action). The rejection (g) refers back to preceding rejections without specifically designating the claims or the preceding rejections which are applicable to the claims. As many as six different rejections could therefore be applicable to each of these claims, but the applicant has no notice or understanding of which rejections are intended to apply to which claims.

**Previous Requests for Clarification Have Been Off-Handedly Dismissed.**

As noted above, the applicant's Amendment and Response of February 26, 2007 requested a statement of reasons in any future obviousness rejection why a person having ordinary skill would have combined the references. The next office action of May 24, 2007 contained no such statement of reasons.

On June 18, 2007, the undersigned had a telephone conversation with Anthony Knight, the supervisory patent examiner. During that telephone conversation, Mr. Knight did not disagree with the undersigned's position that the obviousness rejections were deficient, and he may have acknowledged that the obviousness rejections did not comply with MPEP 706.02(j), but he did not explicitly so state. Instead, Mr. Knight stated that the PTO policy about obviousness rejections was in a state of flux in view of the KSR case. He suggested that the undersigned wait a few weeks before responding because he anticipated that the PTO would issue new examination guidelines in view of the KSR case.

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On August 10, 2007, the undersigned again contacted Mr. Knight by telephone, because the information on the PTO website about the new PTO examination guidelines indicated they were still not available to the public. During that conversation, Mr. Knight clearly did not acknowledge any deficiency with respect to the obviousness rejections, and had no suggestion concerning a reply to the lack of stated reasons in the obviousness rejections for combining the references.

The applicant has taken reasonable steps to attempt to achieve clarification and/or rectification of the obviousness rejections, with a view toward advancing the examination of this application, but without success.

Accordingly, and without waiving the requirement or request for a complete obviousness rejection which asserts reasons why an ordinarily skilled person would combine the references, the applicant can only respond to the differences and proposed modifications of the substantive teachings of the cited references relative to the pending claims.

**The Combinations of References Do Not Reach the Scope of the Claims and Were Assembled from Hindsight.**

The principal reference applied in all of the rejections is Peter. Peter is combined with Daum in all of the obviousness rejections. There are four pending independent claims in this application: claims 1, 52, 66 and 97.

Independent claims 1 and 66, and their dependent claims, recite in the manner set forth, control over surgical equipment resulting from interrogation of contact interaction with a control panel image. The detection or interrogation of contact interaction with the control panel image is the basis for generating the interaction signal supplied to control the surgical equipment. The concept of interrogating contact interaction with a control panel image to achieve virtual control of surgical equipment is not described or suggested in the references cited. Interrogation is described in the specification at page 17, lines 29-31; page 19, lines 10-14; and page 19, line 22 to page 20, line 4, among other places.

Peter does not interrogate contact interaction with the control panel image. Peter interrogates the position or movement of the surgeon's hand or finger above the image. So long as the hand or finger is at a specific position above the image, and remains there

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for a specific amount of time, Peter recognizes this as valid input for controlling non-surgical x-ray equipment. There are finger troughs or recesses and projections or raised areas on the surface upon which Peter projects an image, but these raised areas and recesses are for the practitioner's convenience in registering or aligning his/her finger with the appropriate portion of the image so its presence above the appropriate location will be correctly recognized. See Peter, column 6, lines 9-13. However, Peter does not interrogate contact with the surface upon which the image is located. Peter interrogates only the presence of a finger above the image. Peter has no capability of detecting or interrogating contact with the image.

The inability of Peter to interrogate contact with the control panel image is explained in Peter at column 4, lines 1-15. Peter analogizes the situation to positioning the cursor with a mouse of a computer, and then clicking the mouse by leaving the cursor at the position for a predetermined time. In other words, Peter's activity is entirely two-dimensional, in the nature of casting a shadow, and is not three-dimensional as is involved in interrogating contact with the control panel image surface as is recited more specifically in claims 1 and 66 and their dependent claims.

The Examiner appears to acknowledge that Peter does not describe contact interrogation, but takes the position that Peter can be used as a simulated conventional touch screen. Whether or not Peter can be characterized as a simulated touch screen does not change the fact that Peter does not provide any capability for interrogating contact interaction. Indeed, relying on an analogy of functionality rather than an actual description of functionality simply emphasizes the failure of Peter to describe the relevant concept of interrogating contact interaction for purposes of controlling surgical equipment.

The Daum reference contributes nothing of significance beyond Peter's disclosure. The Daum reference describes a robot-like arm which is mechanically manipulated by cables in response to movements of a human hand. Moreover, Daum does not describe control panels, much less the use of virtual control panels.

Since Daum's mechanical hand does not appear to require any kind of control panel for its use, and because nothing in Peter relates to mechanical hands, there is no apparent basis for combining Peter and Daum. However, even if combined, nothing in

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the combination teaches or suggests interrogation of contact interaction with a control panel image for the purpose of controlling surgical equipment. Indeed, neither Peter nor Daum relates to controlling surgical equipment under conditions within a sterile field, as described in the application at page 2, lines 3-13.

The Tomasi reference may have been applied as a third reference in the rejection of independent claims 1 and 66, and/or some of their dependent claims. Tomasi describes a virtual keyboard for a computer. Nothing in the Tomasi describes or suggests any applicability to controlling surgical equipment. Nothing in Tomasi relates to the issues associated with allowing a surgeon to directly control the surgical equipment by interaction with a virtual image within a sterile field rather than rely on an assistant to control the equipment in response to voice commands, as described in the application at page 2, lines 3-13.

Independent claims 52 and 97, and their dependent claims, recite in the manner set forth, the use of a tag from which information is read in connection with interrogating interaction of the surgeon with the control device image. The information from the tag and the interrogated interaction with the control device image are both required to control the surgical equipment. None of the cited references teach or suggest the concept of both the reading information from an information tag and interrogating interaction with a virtual control device image as required inputs to control surgical equipment.

As noted, neither Peter nor Daum relate to controlling surgical equipment. Neither reference therefore addresses the problems of a surgeon directly controlling the equipment from within the sterile field of an operation rather than relying on voice commands to an assistant outside of the sterile field, as described in the application at page 2, lines 3-13. The combination of Lemelson and Rabin with Peter and Daum, which is the basis for rejecting independent claims 52 and 97, does not teach or suggest the concept of using simultaneous input information from reading and information tag and interrogating interaction with the control panel image as a required inputs to reliably control surgical equipment.

Lemelson describes an information display system used by surgeons. Information concerning the patient or the equipment is conveniently presented to the surgeon during

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the course of a surgical procedure. Preferably, the information is displayed on a heads up display or face shield worn by the surgeon. The information thus presented is in the line of sight of the surgeon. Lemelson uses an eye tracking system which monitors and interrogates the position of the surgeon's eye while looking at the display information. The eye tracking system moves the cursor on the display to a selected icon. Movement of the cursor by tracking and monitoring movement of the surgeon's eye controls the display system. Eye position tracking and detection allows the surgeon to control the display without the use of any hand movement whatsoever.

Accordingly, Lemelson offers the capability of controlling a display system by interrogating eye movement, not by interrogating contact interaction with a projected control panel and not by reading information from an information tag as one of two required inputs for controlling surgical equipment. Like the shadow detection system of Peter, or the holographic system described in the application at page 3, lines 12-29. Lemelson simply describes another type of control for a display which is substantially different from and unrelated to the two types of interrogation now claimed in the present application. The eye position and movement interrogating system of Lemelson is an alternative stand-alone system, not one to be substituted for Peter.

Rabin relates to scanning information previously recorded on paper to obtain an electronic file of that information which can thereafter be transferred. Rabin does not relate to controlling surgical equipment, and more particularly, Rabin does not relate to interrogating interaction with a virtual control device panel for the purpose of controlling surgical equipment. Even more particularly, Rabin does not teach or suggest reading information from an information tag as one of the inputs required for interrogating interaction with a virtual control panel as a basis for reliable control of surgical equipment.

There is no basis for combining Rabin with Lemelson, because neither relates to the other. The only basis for combining these two references is hindsight based on the applicants invention, and even then such a combination has nothing at all to do with using a dual input of information read from an information tag and interrogating interaction with a virtual control panel image to control surgical equipment. Moreover there is no reason to combine Lemelson or Rabin with Peter or Daum, because Peter and Lemelson are



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alternatives for interrogation of an image which stand-alone with respect to one another which do not suggest or motivate any further combination to each complete system. Nothing is gained by combining Peter and Lemelson since each is a stand-alone system and does not require or benefit from the other, and this deficiency is not remedied by Daum or Rabin, both of which are essentially unrelated to interrogation of virtual control panel images.

Like the combination of Peter and Daum, the further combination with Lemelson and Rabin has to have been motivated by hindsight based on the applicants present disclosure, because there is nothing in the diverse and alternative disclosures of these references which would lead a person having ordinary skill in the art to the present invention.

Contact interrogation with a virtual control panel image, and correlating the information read from an information tag while interrogating interaction with the control panel image, are improvements which enhance the reliability in controlling surgical equipment. Improperly controlling surgical equipment during a surgical procedure could result in serious injury or risk to a patient, or to the surrounding operating room personnel. The contact interrogation and correlated information and interrogation interaction improvements of the present invention result in a high degree of reliability in assuring that the virtual control achieves the desired purpose. A high level of reliability results in a level of reliability similar to that achieved from pushing a button or moving a switch. Such reliability represents a very desirable improvement in virtual control systems such as those used for controlling critical equipment such as surgical equipment. The Peter reference does not provide this level of reliability because an inadvertent movement which casts a shadow could be erroneously detected as a control input for the surgical equipment. The Lemelson reference displays information and does not appear to control the surgical equipment itself although control over the display is achieved.

The use of the tag and the information obtained from that tag assures a level of reliability beyond that available from interrogating interaction with the image, and assures greater reliability when controlling the surgical equipment.

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The significant advantages and improvements available from the claimed invention are described in the application at page 9, line 16 to page 10, line 6; page 11, line 15 to page 12, line 23; and page 25, line 23 to page 26, line 11; among others – all taken in relation to the Background information described at page 2, line 3 to page 5, line 6.

The foregoing comments concerning the deficiencies in regard to interrogating contact interaction as described in independent claims 1 and 66, and their dependent claims, and in regard to correlating information read from a tag while interrogating interaction with a virtual control panel image as described in independent claims 52 and 97, and their dependent claims. The following comments are addressed to the specific rejections.

In regard to the first rejection (a) described herein on page 32, the hindsight basis for combining Peter and Daum, and the failure of such a combination to reach the extent of the claimed invention, has been described above, including with respect to the suggested combination with Tomasi. On page 3 of the office action, it is alleged that the virtual control system in Peter is for "controlling surgical equipment." The passage of Peter cited in support for this proposition does not mention surgical equipment. Indeed, the words "surgical" or "surgery" do not appear to be present anywhere within Peter.

In regard to the second rejection (b) described herein on page, the combination of Wang with Peter and Daum does not meet the scope of the rejected claims or rectify the deficiencies of Peter and Daum. Nothing in Peter, Daum or Wang suggests replacing the physical foot switch device disclosed in Wang with an image as described in the application. There is no nexus among these three references which suggests their combination, leading to the conclusion that they have been combined with impermissible hindsight. Even if the references were to be combined as proposed in the August 28 office action, the combination would still be deficient with respect to the interrogation of contact interaction with an image of a foot switch.

With respect to the third rejection (c) described herein on page 32, based on a combination of Peter, Daum, Wang and Voronka, none of the references teach or suggest using a tag in addition to interrogating contact interaction to establish reliable interaction with a virtual control panel image. Voronka describes optical markers that are

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attached to an individual in order to track the movement of various parts of the body. Voronka does not suggest using the markers in conjunction with interrogating contact interaction with an image for the purpose of controlling surgical equipment, and neither do Peter, Daum or Voronka. Combining multiple unrelated references indicates that impermissible hindsight gained from the applicant's own disclosure was used in formulating the rejection. The necessity of relying on multiple unrelated references demonstrates the patentable nonobviousness of the claimed subject matter.

With respect to the fourth rejection (d) described herein on page 32, based on a combination of Peter, Daum, Wang, Voronka and Tomasi, the Tomasi reference relates to a virtual keyboard for a computer. On page 9 of the office action, it is alleged that "Tomasi teaches the image projector projects the image of the contact control area on the floor at a position ..." Tomasi does not teach projecting an image on the floor. Indeed the word "floor" does not appear to be mentioned in the Tomasi patent. Nothing in Tomasi suggests or teaches its combination with respect to controlling surgical equipment in an operating room by use of a virtual control device panel. The combination of the five references must result from hindsight gained from the applicant's own disclosure, since nothing in those five references teaches or suggests their combination.

With respect to the fifth rejection (e) described herein on page 32, based on Peter, Daum and Lemelson, the failure of this combination of references to reach the claimed subject matter, and the inappropriate hindsight basis for combining these references has been discussed above in greater detail. Lemelson relates to controlling a display by interrogating eye movement or position.

In regard to the sixth rejection (f) described herein on page 32, based on Peter, Daum, Lemelson and Rabin, the failure of this combination of references to reach the claimed subject matter, and the inappropriate hindsight basis for combining these references has been discussed above in greater detail. Rabin relates to scanning information written on paper for use in developing an electronic file, not for controlling surgical equipment or interrogating interaction with a virtual control device panel for the purpose of controlling surgical equipment. Again, the rejection has been formulated

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based on hindsight since none of the references suggest the combination of subject matter claimed.

In regard to the seventh rejection (g) described herein on page 32, the rejection of those claims is considered inappropriate for the same reasons indicated above in response to the rejections of the pending preceding claims, as described above.

Conclusion

It is believed that the pending claims define nonobvious, patentable subject matter, and that the pending claims are not obvious over the cited combinations of references. All of the pending claims are believed to be in condition for allowance. Allowance is respectfully requested.

The Examiner is requested to contact the undersigned by telephone to discuss any issues which may inhibit the immediate allowance of the claims.

Respectfully submitted,

Date: Aug. 24, 2007

By: 

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Certificate of Filing by Facsimile Transmission

The undersigned hereby certifies that the foregoing **Response to Second Office Action**, including the attached transmittal letter showing that no additional fees are required and the May 3, 2007 Memorandum from Margaret A. Focarino, are being transmitted by facsimile to the United States Patent and Trademark Office, at the Central PTO facsimile number 571 273 8300, this 24<sup>th</sup> day of August, 2007.



## UNITED STATES PATENT AND TRADEMARK OFFICE

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## MEMORANDUM

DATE: May 3, 2007

TO: Technology Center Directors

FROM: *Margaret A. Focarino*  
Margaret A. Focarino  
Deputy Commissioner  
for Patent OperationsSUBJECT: Supreme Court decision on *KSR Int'l. Co., v. Teleflex, Inc.*

The Supreme Court has issued its opinion in *KSR*, regarding the issue of obviousness under 35 U.S.C. § 103(a) when the claim recites a combination of elements of the prior art. *KSR Int'l Co. v. Teleflex, Inc.*, No 04-1350 (U.S. Apr. 30, 2007). A copy of the decision is available at <http://www.supremecourtus.gov/opinions/06pdf/04-1350.pdf>. The Office is studying the opinion and will issue guidance to the patent examining corps in view of the *KSR* decision in the near future. Until the guidance is issued, the following points should be noted:

(1) The Court reaffirmed the *Graham* factors in the determination of obviousness under 35 U.S.C. § 103(a). The four factual inquiries under *Graham* are:

- (a) determining the scope and contents of the prior art;
- (b) ascertaining the differences between the prior art and the claims in issue;
- (c) resolving the level of ordinary skill in the pertinent art; and
- (d) evaluating evidence of secondary consideration.

*Graham v. John Deere*, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966).

(2) The Court did not totally reject the use of "teaching, suggestion, or motivation" as a factor in the obviousness analysis. Rather, the Court recognized that a showing of "teaching, suggestion, or motivation" to combine the prior art to meet the claimed subject matter could provide a helpful insight in determining whether the claimed subject matter is obvious under 35 U.S.C. § 103(a).

(3) The Court rejected a rigid application of the "teaching, suggestion, or motivation" (TSM) test, which required a showing of some teaching, suggestion, or motivation in the prior art that would lead one of ordinary skill in the art to combine the prior art elements in the manner claimed in the application or patent before holding the claimed subject matter to be obvious.

(4) The Court noted that the analysis supporting a rejection under 35 U.S.C. § 103(a) should be made explicit, and that it was "important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. The Court specifically stated:

Often, it will be necessary . . . to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an **apparent reason** to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis **should be made explicit**.

*KSR*, slip op. at 14 (emphasis added).

Therefore, in formulating a rejection under 35 U.S.C. § 103(a) based upon a combination of prior art elements, it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed.